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## **MOBILE PHASE GRADIENT GENERATION MICROFLUIDIC DEVICE**

### **ABSTRACT OF THE DISCLOSURE**

10 The present invention relates to a microfluidic device for separating the  
components of a fluid sample. A cover plate is arranged over the first surface of a  
substrate, which, in combination with a microchannel formed in the first surface, defines  
a separation conduit for separating the components of the fluid sample. An inlet port in  
fluid communication with the separation conduit allows a mobile phase containing a  
gradient of a selected mobile-phase component to be introduced from an integrated  
gradient-generation means to the separation conduit. A method is also provided for  
15 separating the components of a fluid sample using a mobile phase containing a gradient  
of a selected mobile-phase component, wherein the gradient is generated within a small  
volume of mobile phase.

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